Erratum: "Crystallite size dependent exchange bias in MgFe$_2$O$_4$ thin films on Si(100)" [J. Appl. Phys. 124, 053901 (2018)]

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Erratum: "Crystallite size dependent exchange bias in MgFe₂O₄ thin films on Si(100)" [J. Appl. Phys. 124, 053901 (2018)]

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AFFILIATIONS

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1. The data in Fig. 1(c) of our original paper[1] correspond to Sample A whereas the data in Figs. 2–4 correspond to Sample B. Both Samples A and B were prepared using identical deposition conditions and the same thicknesses. After the initial set of measurements on Sample A [corresponding to Fig. 1(c)], the sample got destroyed and hence, subsequently, we *prepared Sample B with identical conditions.*

2. In Fig. 1(c), the M-H loop presented for the thin film is taken for Sample A after field cooling at ±1 kOe at 10 K, which is incorrectly labeled as ±6 kOe. Here we present the M-H loops taken at 10 K after −1 kOe (Sample A) and −6 kOe (Sample B) field cooling and an expanded view near the origin. Due to unavailability of −6 kOe data for Sample A, we are unable to compare −1 kOe of Sample A with −6 kOe of Sample A. The calculated H_E and H_C values for the two plots are tabulated below. These plots should highlight that the plots in the main manuscript were for the ±1 kOe cooling field data and not the ±6 kOe as mentioned.

   The aim of Fig. 1(c) in our paper[1] was to depict the opposite and equal shift in the hysteresis loop for opposite field cooling, which the ±1 kOe plots successfully illustrate.
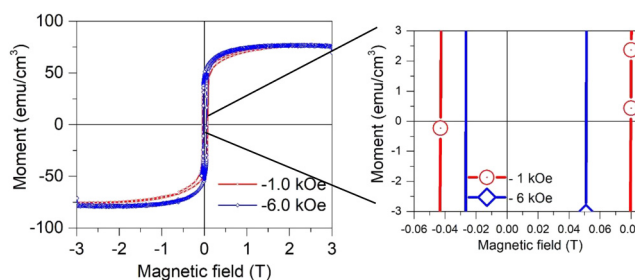

FIG. 1. M-H hysteresis loop and its expanded view near origin at 10 K under −1 kOe (Sample A) and −6 kOe (Sample B) cooling field.

3. Here we compare the H_C and H_E values for the 1 kOe cooling field at 10 K from both Fig. 1(c) (measured on Sample A) and 2(a) (measured on Sample B) and tabulate below.

   To explain the observed difference in the H_C values, note that the field step size taken for hysteresis loop sweeps was 10 Oe. Consequently, considering an error of ±20 Oe in determining the intercept, an error of ±40 Oe is expected in determining the H_C values. In addition, small errors can also arise from the high field diamagnetic substrate correction of the M-H loops. These factors dictate the experimental accuracy of our results. But, in the table above, note that the difference in the H_C values is slightly greater than this experimental accuracy. Here, we are

Cooling field (kOe)	H_C (Oe)	H_E (Oe)
−1 (Sample A)	610	185
−6 (Sample B)	390	123

Original figure	H_C (Oe)	H_E (Oe)
1(c)–Sample A	610	185
2(a)–Sample B	545	185

comparing H_C values of Samples A and B both prepared under identical conditions. Although, ideally, they should match, small differences in their defect density, crystal structure, and/or magnetic configuration can contribute to such mismatch. We would like to emphasize that since Figs. 2–4 of our original paper contain data from the same sample (Sample B), this small difference does not alter any of the conclusions.

4. The training was done at −20 kOe field cooling instead of the mentioned 20 kOe, which resulted in the plots of Fig. 4 in the original paper.

REFERENCES

[1]K. Mallick and P. S. Anil Kumar, J. Appl. Phys. **124**, 053901 (2018).